



# Exploring the Dangerous Trades

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## EXPLORING THE DANGEROUS TRADES

Allan M. Brandt

**Martin Cherniack.** *The Hawk's Nest Incident: America's Worst Industrial Disaster.* New Haven, Conn.: Yale University Press, 1986. x + 194. Appendix, notes, and index. \$19.95.

**David Rosner and Gerald Markowitz, eds.** *Dying for Work: Workers' Safety and Health in Twentieth-Century America.* Bloomington: Indiana University Press, 1987. xx + 234. Notes, tables, selected bibliography, and index. \$35.00.

In 1943, noted industrial health expert, Dr. Alice Hamilton, published a memoir, *Exploring the Dangerous Trades*. Hamilton had spent her professional career fearlessly documenting the nature of dangerous industrial chemicals and toxins, working tirelessly to have them removed from the workplace. A founder of the field of industrial hygiene, Hamilton recognized the serious toll taken on health by working conditions in factories and mines.<sup>1</sup>

Martin Cherniack's *The Hawk's Nest Incident*, and David Rosner and Gerald Markowitz's *Dying for Work* seek to explore the history of the dangerous trades in modern America. Both suggest that health and disease are critical markers for understanding the nature of work. The "new" labor history of the 1960s and 1970s sought to move beyond traditional historical accounts of trade unionism to reflect the sociocultural "world of the worker." Nevertheless, few works in this genre explicitly directed attention to the considerable dangers of work which laborers endured. Moreover, few studies attempted to describe precisely the toll in disease and debility taken by industrial labor. These two fine books break new ground in historical attempts to understand the relationship of class, work, and disease. Although many historians have focused attention on fights concerning hours and wages, these accounts direct attention to the debates about working conditions and safety. In this respect, these books take on a critical yet relatively unexplored dimension of labor history, as well as the history of public policy and medicine.

Martin Cherniack's account of the industrial disaster at Gauley Bridge, West Virginia in 1930 is thoroughly researched and closely rendered. Cherniack's narrative is a model of prospective exposé. Although the story of the

tragedy at Gauley Bridge has been told before, Cherniack's is the definitive account.

The New Kanawha Power company, a subsidiary of Union Carbide, drilled the Hawk's Nest Tunnel in 1930 and 1931 to divert the New River to provide hydroelectric power for a steel alloy production plant. At the time, the thirty-foot wide, three-mile long tunnel was widely noted as a miracle of modern engineering—the ability to move mountains in the name of progress. What was not immediately recognized, however, was the tragic toll that the project had exacted in human lives and health.

In order to conduct the project, Union Carbide built camps for workers and sought to attract itinerant laborers to Gauley Bridge. They provided room and board to workers for one-half of their weekly salaries. An estimated 2,000 men worked ten-hour shifts, six days per week. Given the nature of the work, there was frequent turnover of workers. At any time, 500 men were underground, with 35 at the drilling face. Blacks and whites were segregated; blacks did the more dangerous work. Working conditions in the tunnel posed great risk for the workers. Ventilation was poor and gas fumes filled the site. Dust made visibility difficult. The lack of oxygen in the tunnel forced workers to inhale more deeply, taking the inorganic dusts, especially silica, deep into their lungs.

By the time the tunnel was dug in the early 1930s, the disease silicosis was already widely recognized among miners and experts in occupational disease. When silica dust is inhaled into the lungs it creates pathological changes that result in loss of pulmonary function, permanent disability, and sometimes, death. During and after the drilling of the tunnel, reports of disease among those itinerant laborers who did the work began to circulate; according to some reports, many had died. Because many of the men had left the area after becoming sick or after the completion of the work, the story of their demise was difficult to substantiate. Rumors circulated in nearby towns, but it was impossible to verify the stories of mass burials. Finally, in 1936, spurred by press accounts of the disaster, Congress convened hearings to investigate what had happened at Gauley Bridge.

Members of the congressional committee soon learned that when men working on the tunnel manifested symptoms of sickness, they were forced from the worksite. As one witness told the congressional investigation, "I have seen the sheriff and his men run the workers off their places when they were sick and weak, so weak that they could hardly walk" (p. 95). Senator Rush D. Holt of West Virginia, after hearing testimony, concluded, "This is the most barbaric example of industrial construction that has ever happened in this world. The company well knew what it was going to do to those men. They brought up those transients, especially from the South, and treated

them worse than dumb animals" (p. 78). Union Carbide officials, however, consistently denied that conditions in the tunnel had contributed to disease and death. "I never saw dust, or at least not enough to say it was dusty," reported the chief engineer at the site. Company officials argued that the risk of silicosis could not have been anticipated.

Cherniack effectively refutes this view, presenting powerful evidence that the dangers of silicosis were widely recognized in the mining industry prior to the Hawk's Nest project. He concludes that the company's claim that it was unaware of the risks in the mine must be considered duplicitous. First, the company was fully aware of the high silica content of the mountain; they used the silica which they removed. Second, silicosis was already widely recognized by the 1930s; further, it was known that adequate ventilation and moisture at the drill site could reduce dangerous dust. Finally, Cherniack provides evidence that Union Carbide provided its own engineering staff at the site with respirators.

Given the nature of the story that Cherniack tells, it would be easy to lapse into hyperbole and outrage. Yet Cherniack's deliberate and careful account makes it all the more persuasive. Particularly impressive is the range of sources and methods that have been engaged in constructing a narrative of the events at Gauley Bridge. He demonstrates sensitivity to regional culture, uses oral history effectively, as well as employs quantitative epidemiologic techniques.

Since the time of the disaster there has been considerable debate about its extent. Union Carbide minimized the problem, while press reports varied. In an extensive appendix, Cherniack uses epidemiologic techniques to estimate the actual toll in lives taken to build Hawk's Nest. He argues that it is likely that more than 700 men died as a direct result of their work in the tunnel. This is an important exercise for two reasons. First, it provides a powerful reminder of the extent of the tragedy, the human costs of what might merely seem in retrospect a technological achievement. Second, from a historical viewpoint it suggests the range of social science and quantitative techniques that may be employed to bring greater clarity to the historical record. In short, it provides a more complete understanding of the material reality of dangerous work.

If Cherniack's book boldly raises the specter of disregard for workers' health, Rosner and Markowitz's collection of essays offers a fuller context for the consideration of health and disease within labor history. While Cherniack's study focuses on the epidemiological impact of a specific industrial tragedy, the Rosner and Markowitz volume provides considerable background into the political and social history of the debates about occupational safety and risk. These essays center on the complex *process* of recognizing and

regulating workplace risks, as well as the political economy of conflicts regarding the dangers of work.

With the intensive industrialization of the late nineteenth century, work acquired new dangers. As the Hawk's Nest disaster makes clear, among the most dangerous worksites were, of course, the mines. Accidents and injuries were common. As Alan Derickson demonstrates in his essay on the Coeur d'Alene Union Hospitals, workers expressed serious concerns about health and organized to provide members with health benefits as early as the late nineteenth century. The hospitals that the Union built provided a range of services to injured and sick members. A series of mining disasters in the late nineteenth century did prompt legislation for mine safety. But well into the twentieth century, as the disaster at Gauley Bridge would indicate, such requirements failed to adequately protect workers from disability and death.

In the years before the introduction of workmen's compensation, business responded to growing public concerns about industrial hazards through programs to assist injured workers. Accident relief funds, jointly financed by workers and employers, provided some assistance, but as Robert Asher shows, these paternalistic programs often foundered on the conflict between attempts to make work safer while simultaneously seeking greater productivity at lower costs. Relief associations sought to deflect union activity, as well as control liability.

By the first years of the twentieth century, the impact of industrial accidents had created a compensation crisis. Increasingly workers who suffered serious injuries on the job found restitution through litigation. As Anthony Bale explains in an insightful essay on compensation, workers and attorneys "raised the value of the legal right of action for workplace injuries" (p. 40). Liability insurance rates rose, generating a crisis for employers. According to Bale, at stake in the crisis was the very nature and meaning of the term "accident." Fundamental questions regarding responsibility and accountability for untoward events were at the center of the debates regarding compensation. Who was responsible? Who should bear the cost of injury? What would be the process by which accountability would be evaluated. As Bale explains, industrial accidents produced a series of "claims" which would then be negotiated. The development of workmen's compensation laws eased the early twentieth-century crisis in litigation, but larger questions of worksite risk would persist, especially as the nature of occupational dangers changed.

The growing numbers of nontraumatic injuries—the risks of toxins and inorganic pollutants leading to systemic and chronic disease—changed the nature of the debates about occupational safety by the first decades of the twentieth century. Rosner and Markowitz, in a series of essays, trace the conflicts about the nature of and responsibility for health risks. As the reliability of

employers to ensure the health of their workers was increasingly called into question, there was considerable disagreement as to whether issues of occupational safety should remain the province of the unions or be subject to governmental regulation. A major labor initiative was the Worker's Health Bureau, an organization of progressive-oriented union activists who directed research into working conditions during the 1920s. The Bureau conducted a series of studies concerning chemical and dust-related diseases, centering attention on the risks of benzol, carbon dioxide, and silica dust, all important industrial hazards. Despite the impressive nature of these studies, the misgivings of the American Federation of Labor eventually led to the demise of the Bureau.

By the 1930s, the federal government sought greater involvement in occupational safety, driven in part by disasters such as that at Gauley Bridge. Rosner and Markowitz outline New Deal policy, emphasizing the conflicts between the Department of Labor under Frances Perkins and the Public Health Service. This rivalry, they suggest, reflected a deep ideological divide concerning the role of the government in questions of occupational safety: Were industrial risks a labor problem or a health problem? The Public Health Service, emphasizing medical and scientific aspects of industrial hygiene, sought to cooperate with industry in research; the Department of Labor, however, recognized that workplace hazards brought labor and management into direct conflict. While the Public Health Service emphasized the medical condition of individual workers, the Department of Labor tended to look more broadly at dangers inherent in the work environment. This division continues to be reflected in contemporary approaches to occupational disease. The National Institute for Occupational Safety and Health (NIOSH), an agency of the NIH, has essential responsibility for scientific investigation of health hazards; while the Occupational Safety and Health Administration (OSHA), a division of the Labor Department, has principal responsibility for enforcing federal standards in the workplace.

But as several of the essays in this volume make clear, the process by which risks would be identified and regulated has never followed neat organizational charts. To the contrary, they have been subject to intense debate and powerful economic forces. Craig Zwerling documents the tortured route by which the dangers of beryllium came to be recognized in the production of fluorescent lights. He documents how the specific commitments of individual researchers shaped their scientific conclusions. Only after considerable research and debate did it become clear that beryllium could lead to acute and chronic respiratory disease, and, in some cases death.

A particularly noteworthy essay by William Graebner underscores the ambiguous nature of scientific findings. Graebner shows how the gas industry

shaped the research science as well as public understanding of the dangers of leaded gas over a period of decades. In fact, it was only the recognition of the environmental risks of lead that confirmed the occupational hazards. Other essays in the collection examine a series of occupational hazards whose inadequate regulation, despite fairly widespread recognition of risk, led to considerable harm among workers; these range from the hazards of radium watch dials to brown lung among textile workers.

Although the essays in this volume are disparate, and, at times, uneven, they effectively direct attention to the range of historical problems raised by industrial hazards in the workplace. Among the significant themes that emerge is the dilemma of demonstrating risk in the modern work environment. While the nature of traumatic injury and death led to legislative controls of certain high risk industries, such as mining, the recognition in the twentieth century of "slow risks," low-level but definite risks, and the difficulty of "proving" the risk of specific toxins, has greatly complicated efforts to assure occupational health and safety. Furthermore, the fundamental complexity of multiple risk factors made assessment of responsibility for harm even more difficult. Finally, the very politics of "margins of safety" revealed underlying values about the nature of class and work under industrial capital.

The precise ways in which economic and political forces affected the scientific assessment of dangers reveals a more complex notion of the nature of objectivity and science than might be assumed. In this respect, Rosner and Markowitz fail to provide adequate attention to the development of epidemiological and statistical techniques that would make it possible to arrive at more powerful conclusions about the nature of industrial and environmental hazards. As epidemiological techniques were honed in the years after World War II, the powerful conflicts between significant economic interests and workers' health were brought into stark relief despite the fact that companies often refused to permit access to critical data. The very concept of risk, as these essays indicate, has been socially elastic.

As both these books demonstrate, even the recognition of danger did not lead to clear and explicit social policies. Implicit in the conflicts over industrial risks have been a series of complex questions and powerful vested interests eager to obscure the nature of these risks. What has been the nature of corporate responsibility for the health of workers? What types of risks have been tolerated and what have not? Are disputes concerning health risks best left at the bargaining table or are they more appropriately the province of governmental regulation? And finally, what is the manner in which such disputes have been studied and resolved; what is the relationship of scientific investigation of risk to the formulation of social policy?

These are difficult but important questions that will require further system-

atic historical research. But these two books contribute significantly to our understanding of the nature of work in modern industrial America and its powerful impact on human health and disease. They demonstrate the importance of health as a preeminent marker of social change and economic conflict. The authors argue that if we are to understand the nature of industrial work in the twentieth century, we must be sensitive to the varied indicators of health and disease. They make abundantly clear the valuable historical insights that may accrue from "exploring the dangerous trades."

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1. Alice Hamilton, *Exploring the Dangerous Trades* (1943, reprinted 1985); see also Barbara Sicherman, *Alice Hamilton: A Life in Letters* (1985).